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vent smut, while a 10 per cent. solution prevented smut and greatly injured the seed.

Natural enemies of smut.—Five different natural enemies of smut are described. A white mold, probably some species of *Fusarium*; a black mold, a new species of *Macrosporium*; a bacterial disease; and two smut-eating beetles.

The bulletin also contains a few preliminary notes on stinking smut, announcing that experiments are already under way to determine the comparative value of different fungicides in this case also.—EFFIE A. SOUTHWORTH.

KELSEY, F. D. *Study of Montana Erysipheæ*. Botanical Gazette, Vol. XIV. No. 11, p. 285.

This paper, prepared by Mr. Kelsey, contains a number of interesting notes upon nine species of *Erysipheæ* of Montana, a number of rare hosts being cited, and one provisional new species, *Erysiphe sepulta*, E. & E. on *Bigelovia graveolens*. This species is, however, acknowledged to resemble *E. chicoracearum*, DC. quite closely, a species widely variable upon the many hosts which it inhabits.—DAVID G. FAIRCHILD.

L'ECLUSE, A. DE. *Traitement du Black Rot*. Rapport à M. le Ministre de l'Agriculture. Le Progrès Agricole, October 13, 1889.

The results contained in this short report to the French minister of agriculture, while they present nothing strikingly new in the matter of treatment of black-rot, may be of interest to vine-growers and others as coming from a foreign experimenter. The author theorizes in the first part of the report among other things upon the ability of the fungicidal solutions to penetrate the conceptacles of the black-rot upon the leaves, taking it for granted that the leaf-spot and black-rot of the berries are identical. He believes it consequently almost useless to spray the berries simply without destroying the sources of infection found in the fungus of the leaves, and counsels spraying all the green surfaces of the vine as well as the grape clusters themselves. This to be done at least before the middle of May.

The report of the author's field experiments, in which the common fungicides seem to have been largely used, contains no new points either in matter of apparatus or mixtures, and is somewhat complicated, certain unexpected variations being explained by the ungovernable conditions so abundant in such work. Without discussing the details of the investigations or questioning particularly whether he is authorized in drawing such broad conclusions from only one year's experiments, it may be well to state briefly the author's opinions: That the efficacy of the copper compounds against black-rot is indisputable; that the disrepute into which they have fallen is due solely to misdirected use of them; that their action is at the same time preventive and curative if spread uniformly upon all green parts of the vine; and that the crop

gathered will be lighter as the applications are less perfectly made. In conclusion the writer adds:

I am happy to be able to say that the black-rot, which American viticulturists have considered with reason as the worst of diseases, is to-day a malady less difficult to guard against than the odium, the anthracnose, or the mildew.—DAVID G. FAIRCHILD.

PECK, CHARLES H. *Boleti of the United States*. Bulletin of the New York State Museum, Vol. II, No. 8, September, 1889.

In this bulletin Professor Peck brings together descriptions of all *Boleti* known to occur in the United States. Convenient synoptical tables have been arranged for the use of students, and the author seems to have done everything to make this a complete synopsis of the United States species of this important family. Western readers will at once notice that the Rocky Mountain regions are not cited in the geographical distribution of the species, and even California is only credited with a very few, the vast majority seeming to occur in the Eastern and Southern States. We would naturally inquire whether the *Boleti* have been carefully searched for by botanists in the Rockies, or whether there is a natural but deplorable dearth of such fungi in these regions. It is almost certain that from the western slopes of the Rocky Mountains many new and otherwise interesting *Boleti* will yet be reported, because on the western slopes the best natural conditions obtain for their development. It is possible, however, that the comparative lack of damp forests and copses on the eastern slopes, of the northern Rockies at least, may preclude the possibility of very many *Boleti* ever being found there, as the forests, though extensive, are neither very dense nor very humid.

In the paper before us 110 species are recorded, as against 100 species described in *Hymenomyces Europæi*. Of the whole number 36 are natives of Europe as well as America. The author has found it necessary to establish two tribes not represented in European *Boleti*, as he remarks, "for the reception of species for which no place is found among the Friesian tribes." He has adopted Fries's classification in the main. He tells us that a few species have been left unclassified in consequence of the imperfect character of their descriptions, and that a few unpublished species have been omitted because they are as yet represented by too scanty material. The genera included in the paper are as follows: BOLETINUS—5 species. This genus is distinguished from *Boletus* by the tubes not being easily separated from the hymenophore and by the hymenium having a perceptibly radiating structure. BOLETUS—103 species; the six following being described as new: *B. (Viscipellis) hirtellus*; *B. (Subpruinosi) dictyocephalus*; *B. (Calopodes) rimosellus*; *B. (Calopodes) flexuosipes*; *B. (Edules) leprosus*; *B. (Luridi) subvelutipes*. STROBILOMYCES—2 species. This genus is distinguished from *Boletus* by the tubes being not easily separable from the hymenophore and by the hymenium being without a perceptibly radiating structure. The author remarks that by the former character and by the tough sub-